

not much larger nor greatly raised, separated by several rows of convex scales; the occipital distinct, and larger than the surrounding scales, but small, elongate; a slight pit or depression on the region behind it. Two or three series of larger keeled scales on the superciliary space. Ear small, narrow, not much larger than the occipital.

Scales of the back small, keeled; of the side elongate, oval, convex; of the belly larger than those of the back, keeled; of the tail like those of the back and belly; of the limbs also keeled. The hind limb reaches to the eye; the fore limb the length of the side. The toes are not dilated. Goitre very large, extending nearly to the middle of the abdomen.

Colour pale brown, variegated with darker, in the form of large rhombic spots, open in the middle, along each side of the median line of the back; dark spots and streaks also on the sides, head, and limbs.

Specimens in the British Museum from Venezuela and Dominica.

XXXVII.—*Biographical Notice of the late Dr. JOHN EDWARD GRAY.*

IT is our painful duty this month to record the death on the 7th ultimo of Dr. John Edward Gray, F.R.S. &c., who has been for the last seventeen years one of the Editors of this Journal.

Dr. Gray was born at Walsall in the year 1800; so that at the time of his death he had just completed his 75th year. He was the son of Mr. S. F. Gray, the author of the well-known 'Supplement to the Pharmacopœia,' and the grandson of Mr. Samuel Gray, a seedsman in Pall Mall, who possessed considerable scientific knowledge, translated the 'Philosophia Botanica' of Linnæus for his friend Mr. Lee, of Hammersmith, and assisted him in the composition of his 'Introduction to Botany,' which first made known the labours of the great Swedish naturalist to English readers. Dr. Gray may thus be regarded as belonging to a family in which natural-history tastes were hereditary.

According to his own account he was a weakly and ailing child, confined to his chair for eight months in the year, and never eating animal food. At a very early age he says he began the world, to provide for himself and help his family. He was originally intended for the profession of medicine; but his studies were very early turned specially to natural history;

in 1819 he had joined the London Philosophical Society, which numbered the late Mr. Faraday among its members, and in 1820 he was a member of the Philosophical Society of London, a society established in 1810 under the patronage of the Duke of Sussex,

The old Entomological Society of London, the successor of the Aurelian Society, established in 1806, at this time held its meetings at No. 87 Hatton Garden; and in 1822 Dr. Gray became a Fellow and Secretary of that Society, which was soon afterwards expanded into the Zoological Club of the Linnean Society. As the Fellowship of the Linnean Society was an essential qualification for being a member of the Zoological Club, John Edward Gray was excluded from it; for although he had been proposed as a Fellow of the Linnean Society by such men as Haworth, Vigers, J. F. Stephens, Joseph Goodall, Latham, Griffith, and Salisbury, he was rejected by a large majority in a very full meeting, on the 16th of April, 1822. It is of course impossible now to ascertain the precise reasons for the rejection of a young naturalist who had already given evidence of no ordinary powers and attainments both in zoology and botany. Dr. Gray himself has suggested that his certificate, bearing "the names of at least four naturalists anxious to improve zoology and botany, may have frightened the regular 'Linnaeans,' of whom Dr. Shaw may be considered a fair example. He proposed putting his heel on or, as some say, breaking with a hammer all shells not in the twelfth edition of Linnaeus's 'Systema Naturæ.' Things not in Linnaeus ought not to exist." Such views as these are undoubtedly very narrow; but, supposing them to exist, the policy of preventing the opposite party from gaining an accession of strength in the person of the young candidate would be intelligible, and to a certain extent respectable. But the reason actually assigned for his rejection was paltry. He was accused of having insulted the President of the Society, Sir James Edward Smith, by quoting the 'English Botany' as Sowerby's, Sir James having been hired by Sowerby to write the text for his plates.

We should not have dwelt so long upon this miserable history but for the circumstance that, whatever may have been the cause of his rejection, the fact itself certainly had a great influence upon Dr. Gray's character. One can easily understand that the circumstance of being thus ignominiously rejected must have been a bitter disappointment to a young and enthusiastic naturalist such as Gray then was; and we cannot wonder that he placed himself in decided antagonism to those whom he thought his enemies in the matter, and thus acquired that combative habit of mind which undoubtedly

in after life procured him many "unfriends." In 1826 the Zoological Club was developed into the Zoological Society, which Dr. Gray at once joined, and he was one of its most active Fellows until ill health confined him to his house.

In the mean time, in 1824, he had become an assistant in the Natural-History Department of the British Museum, of which he was appointed Keeper in 1840, on the resignation of Mr. Children. With this great national establishment his life has since been inseparably connected.

In 1826 he married the widow of his cousin, the only son of Dr. E. W. Gray, his granduncle, a former secretary of the Royal Society; and this lady, who survives to mourn his loss, assisted him in all his subsequent labours, and is herself the author of the well-known 'Figures of Molluscous Animals.'

For more than fifty years Dr. Gray's life was one of unceasing activity. Considerably more than a thousand books, memoirs, and notes on almost all departments of zoology, attest the extraordinary versatility and energy of his mind; and his earliest efforts, when little more than a boy, were devoted to the kindred science of botany, in which he, with the cooperation of his father, was the first to introduce the Jussieuan Natural System to English botanists. It may be a question whether his efforts for this purpose, in the 'Natural Arrangement of British Plants,' were not the cause of that ignominious rejection by the Linnean Society of which we have already spoken.

But even the exertions necessary to produce the vast mass of written zoological papers which bear his name did not exhaust his activity; and we find him showing a strong interest in such varied matters as sanitary and metropolitan improvements, education, prison discipline, and the abolition of imprisonment for debt, the improvement of the treatment of lunatics, and the opening of museums, libraries, picture-galleries, and gardens to the public. Dr. Gray claimed to have been the original proposer of the system of a low uniform rate of postage to be prepaid by stamps—a system carried out by Rowland Hill, and now adopted all over the world. He took much interest in the question of the adoption of a decimal scale of coinage, weights, and measures in this country; and between 1854 and 1857 published numerous articles and pamphlets on this subject. His opinion was that if a decimal system were to be adopted, it should be organized on the principle of making the larger coins decimal multiples of a small existing unit, such as the penny, instead of decimal divisors of a large unit, such as the pound.

In considering the immense mass of work published by Dr. Gray, the zoologist may sometimes be inclined to wish that

its amount were less, and that the author had given himself more time for the full elaboration of the various subjects that he took up. In too many instances he hastened to put the results of his researches into shape before he had really completed them; hence further investigations led him to modify the views which he had expressed only a short time previously, and thus two or three papers on the same subject, perhaps the classification of some tribe or family of animals, would follow each other in rapid succession. It would undoubtedly have been better, both for zoology and for his own future fame, if the outcome of the same amount of study had been represented by half, or even a quarter, of the amount of literature which now stands in Dr. Gray's name. But there is one labour of his from which no such deduction is to be made; and it is this especially that will carry his name down the stream of time. From his appointment as an Assistant in the British Museum until the close of his life, but more especially since his having been made Keeper of the Natural-History Department, he devoted himself with unflagging energy to the development of the collection under his charge; and mainly by his exertions it has grown from the rudimentary state in which it existed in the days of Dr. Leach, to the magnificent proportions which it has now attained. It is impossible to overrate the services rendered to zoology in this country by Dr. Gray in the accumulation of the fine series of specimens now possessed by the British Museum, and the excellent catalogues of several departments prepared by him or under his auspices. His knowledge of species and genera in those groups to which his attention was particularly directed was perhaps unrivalled; his great energy and administrative ability enabled him to carry out the business of his department in the face of difficulties and obstacles which few would have overcome. His great services in this respect met with more direct recognition abroad than in this country: in 1852 he received the honorary degree of Doctor of Philosophy from the University of Munich; and in 1860 the large Gold Medal of merit was conferred upon him by the King of Württemberg, on his declining the offer of an order of knighthood which had been made to him. His merits were also acknowledged by many foreign Societies and Academies, which enrolled him in the lists of their honorary and corresponding members. The Academy of Natural Sciences of Philadelphia paid him this honour as early as 1829; and he was subsequently elected to analogous positions by scientific bodies in Boston, Moscow, Rome, Paris, Darmstadt, Lyons, Turin, Strasbourg, Lund, and other places. He was also a Fellow or Member of nearly all the Natural-History Societies in London.

We are conscious that these few and imperfect remarks are far from doing justice to the merits of Dr. Gray. For more than fifty years he occupied a position in the first rank of the naturalists of this country, and both in his capacity as Director of the chief zoological collection in Britain and by his personal exertions in various ways, he exercised a widespread influence. He was always ready to facilitate the study of the splendid collections under his charge, and to give advice and assistance to earnest students; and whilst it must be admitted that the shrewdness of his character, which led him to penetrate the hidden motives of men, coupled with an acquired or natural causticity of manner, often raised a prejudice against him, those who succeeded in getting within the outworks thus raised, found in Dr. Gray a warm-hearted, judicious, kind, and firm friend.

BIBLIOGRAPHICAL NOTICE.

Zoology. By ALFRED NEWTON, M.A., F.R.S. Sm. 8vo. London, 1874. Society for Promoting Christian Knowledge.

The Student's Guide to Zoology, a Manual of the Principles of Zoological Science. By ANDREW WILSON. Sm. 8vo. London: J. & A. Churchill, 1874.

We have already, on more than one occasion, noticed the great fertility of the present day in zoological manuals. Up to within a very few years the student had the choice of two or three English books on the subject, and that was all; now his difficulties must arise solely from an *embarras de richesses*, seeing that the number and variety of the manuals offered for his selection is so great that he ought to be able to suit himself perfectly, if only he knows how to choose.

The two little handbooks of which the titles stand at the head of this article do not profess to furnish a regular system of zoology; they are devoted to the exposition of the principles of the science, or, in other words, the generalization of the results obtained by zoological investigation, to form a basis for future studies. The first of them, by Professor Alfred Newton, is one of a series of shilling 'Manuals of Elementary Science' published by the Society for Promoting Christian Knowledge; and it reflects high credit both on its author and on the Society under whose auspices it has been produced. The leading branches of zoological study are explained very simply and clearly, and from a really zoological stand-point, by Prof. Newton, whose lessons might, we think, be taken to heart with advantage by many modern naturalists, who would be offended if we made this recommendation to them personally. Starting from a very ingenious comparison between the animal world and a bag of coins, Professor Newton indicates the general principles by which